IN THE CLAIMS:

Kindly cancel claims 1, 2, 12 and 36-38 without prejudice.
Kindly amend claims as marked (Amended) hereinbelow.
Kindly enter new claims 53-92.

The current status of the claims currently in this application is as follows:

1. (Canceled)

2. (Canceled)

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3. (Amended) An optical coupler for coupling an optoelectronic device to an optical fiber, comprising:

an electrical connector ;

an optical transmission medium comprising fused fibers disposed proximate the electrical connector; and

an encapsulant surrounding at least a portion of the connector and at least a portion of the transmission medium;

~~The optical coupler of claim 2,~~ wherein ~~the~~ each of the fused fibers have a core diameter smaller than about 50 microns.

4. (Amended) An optical coupler for coupling an optoelectronic device to an optical fiber, comprising:

an electrical connector ;

an optical transmission medium disposed proximate the electrical connector; and

an encapsulant surrounding at least a portion of the connector and at least a portion of the transmission medium;

~~The optical coupler of claim 1,~~ wherein the electrical connector includes a conductive lead having a first end and a second end, wherein the first end is disposed about ninety degrees from the second end.

5. (Amended) An optical coupler for coupling an optoelectronic device to an optical fiber, comprising:

an electrical connector ;

an optical transmission medium disposed proximate the electrical connector; and

an encapsulant surrounding at least a portion of the connector and at least a portion of the transmission medium;

~~The optical coupler of claim 1,~~ wherein the encapsulant includes silica-filled epoxy material.

6. (Amended) The optical coupler of claim 3 ~~1~~, further comprising guide grooves configured to receive guide pins attached to fiber ribbon.

7. (Amended) The optical coupler of claim 3 ~~1~~, further comprising a ground plane formed on a lower portion of the coupler.

8. (Amended) An optical coupler for coupling an optoelectronic device to an optical fiber, comprising:

an electrical connector ;

an optical transmission medium disposed proximate the electrical connector;

an encapsulant surrounding at least a portion of the connector and at least a portion of the transmission medium; and

~~The optical coupler of claim 1, further comprising~~ die attachment material to facilitate bonding of the connector to a substrate.

9. (Amended) An optical coupler for coupling an optoelectronic device to an optical fiber, comprising:

an electrical connector ;

an optical transmission medium disposed proximate the electrical connector;

an encapsulant surrounding at least a portion of the connector and at least a portion of the transmission medium; and

~~The optical coupler of claim 1, further comprising~~ conductive tape configured to facilitate coupling the connector to an optoelectronic device.

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10. (Amended) An optical coupler for coupling an optoelectronic device to an optical fiber, comprising:

an electrical connector ;

an optical transmission medium disposed proximate the electrical connector; and

an encapsulant surrounding at least a portion of the connector and at least a portion of the transmission medium;

~~The optical coupler of claim 1,~~ wherein the electrical connector includes a conductive plug within a microelectronic device.

11. (Original) The optical coupler of claim 10, wherein the electrical connector comprises a plurality of conductive plugs within a microelectronic device.

12. (Canceled)

13. (Amended) An optical coupler comprising:

a waveguide;

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an encapsulant surrounding at least a portion of the waveguide;

at least one guide groove formed in the encapsulant, the at least one guide groove configured to receive a pin from a connector attached to a fiber ribbon; and

~~The optical coupler of claim 12, further comprising~~ an electrical connector formed at least partially within the encapsulant.

14. (Original) The optical coupler of claim 13, wherein the electrical connector comprises a lead of a leadframe.

15. (Original) The optical coupler of claim 13, wherein the connector comprises a wire.

16. (Amended) The optical coupler of claim 13 ~~12~~, wherein the waveguide comprises a plurality of optical fibers fused together.

17. (Amended) The optical coupler of claim 13 ~~12~~, wherein the waveguide comprises at least one fiber.

18. (Amended) An optical coupler comprising:

a waveguide;

an encapsulant surrounding at least a portion of the waveguide; and

at least one guide groove formed in the encapsulant, the at least one guide groove configured to receive a pin from a connector attached to a fiber ribbon;

~~The optical coupler of claim 12,~~ wherein at least a portion of the encapsulant comprises a transfer mold compound.

19. (Amended) The optical coupler of claim 8 ~~12~~, wherein at least a portion of the substrate comprises a ceramic material.

20. (Amended) An optical coupler comprising:

a waveguide;

an encapsulant surrounding at least a portion of the waveguide;

at least one guide groove formed in the encapsulant, the at least one guide groove configured to receive a pin from a connector attached to a fiber ribbon; and

~~The optical coupler of claim 12, further comprising~~ a substrate comprising electrical connectors formed as electrical traces and conductive plugs.

21. (Amended) An optical coupler comprising:

a waveguide;

an encapsulant surrounding at least a portion of the waveguide; and

at least one guide groove formed in the encapsulant, the at least one guide groove configured to receive a pin from a connector attached to a fiber ribbon;

~~The optical coupler of claim 12,~~ wherein the guide groove is formed of conductive material.

22. (Amended) An optical transmission system comprising the optical coupler of claim 3 ~~12~~.

23. (Original) An optical interconnect system comprising:

an optical coupler comprising a waveguide, an encapsulant, and an electrical connector formed at least partially within the encapsulant;

a fiber optic cable attached to the optical coupler; and

a substrate electrically coupled to the coupler.

24. (Original) The optical interconnect system of claim 23, wherein the optical coupler comprises a guide groove and the fiber optic cable comprises a guide pin configured to be received by the guide groove.

25. (Original) The optical interconnect system of claim 23, further comprising an optoelectronic device electrically coupled to the optical coupler, such that the optoelectronic device forms an electrical connection to the substrate and an optical connection to a fiber of the fiber optic cable.

26. (Original) The optical interconnect system of claim 25, wherein the optoelectronic device comprises a vertical cavity surface emitting laser.

27. (Original) The optical interconnect system of claim 25, wherein vertical cavity surface emitting laser is coupled to the optical coupler using flip-mounting technology.

28. (Original) The optical interconnect system of claim 25, wherein the optoelectronic device comprises a photodetector.

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29. (Amended) The optical interconnect system of claim 28 ~~25~~, wherein the photodetector is coupled to the optical coupler using flip-chip mounting technology.

30. (Original) The optical interconnect system of claim 25, wherein the optoelectronic device comprises a vertical cavity surface emitting laser and the system further comprises a photodetector.

31. (Original) The optical interconnect system of claim 30, wherein the vertical cavity surface emitting laser is coupled to the optical coupler using die attach technology and the photodetector is mounted to the optical coupler using die attach technology.

32. (Original) The optical interconnect system of claim 25, further comprising solder interposed between the optoelectronic device and the optical coupler.

33. (Original) The optical interconnect system of claim 23, wherein the waveguide comprises a fused faceplate of a bundle of optical fibers.

34. (Original) The optical interconnect system of claim 23, wherein the electrical connector comprises a lead portion of a leadframe.

35. (Original) The optical interconnect system of claim 23, further comprising a transparent gel attached to a portion of the optical coupler.

36. (Canceled)

37. (Canceled)

38. (Canceled)

39. (Amended) A method of forming an optical coupler, the method comprising the steps of:

creating electrical connectors;

attaching a waveguide to the electrical connectors; and

encapsulating at least a portion of the electrical connectors and at least a portion of the waveguide;

~~The method of forming an optical coupler of claim 36,~~ wherein the step of creating electrical connectors comprises providing a leadframe and bending the leads.

40. (Amended) A method of forming an optical coupler, the method comprising the steps of:

creating electrical connectors;

attaching a waveguide to the electrical connectors; and

encapsulating at least a portion of the electrical connectors and at least a portion of the waveguide;

~~The method of forming an optical coupler of claim 36,~~ wherein the step of creating electrical connectors comprises patterning a surface of a plate of conductive material, etching the plate of conductive material to form conductive leads, and bending the conductive leads.

41. (Amended) A method of forming an optical coupler, the method comprising the steps of:

creating electrical connectors;

attaching a waveguide to the electrical connectors;

encapsulating at least a portion of the electrical connectors and at least a portion of the waveguide; and

~~The method of forming an optical coupler of claim 36, further comprising the step of~~ polishing an end of the waveguide.

42. (Amended) A method of forming an optical coupler, the method comprising the steps of:

creating electrical connectors;

attaching a waveguide to the electrical connectors;

encapsulating at least a portion of the electrical connectors and at least a portion of the waveguide; and

~~The method of forming an optical coupler of claim 36, further comprising the step of~~ singulating.

43. (Amended) A method of forming an optical coupler, the method comprising the steps of:

creating electrical connectors;

attaching a waveguide to the electrical connectors;

encapsulating at least a portion of the electrical connectors and at least a portion of the waveguide; and

The ~~method of forming an optical coupler of claim 37 36, further comprising the step of~~ coating an end of the electrical connectors with a conductive material.

44. (Original) The method of forming an optical coupler of claim 43, wherein the step of coating an end comprises attaching a conductive tape to an end.

45. (Original) The method of forming an optical coupler of claim 43, wherein the step of coating an end comprises plating conductive material on the end.

46. (Amended) The method of forming an optical coupler of claim 42 ~~36~~, further comprising the step of attaching guide sleeves to a portion of the electrical connectors.

47. (Amended) The method of forming an optical coupler of claim 42 ~~36~~, further comprising the step of forming a ground plane coupled to a portion of the electrical connectors.

48. (Original) An optical transceiver comprising:

an electrical connector;

a photonics component flip-chip mounted attached to a first portion of the electrical connector;

a substrate attached to a second portion of the electrical connector;

an optical transmission medium made of fiber bundles disposed proximate the electrical connector;

an encapsulant surrounding at least a portion of the connector and at least a portion of the transmission medium; and

a guide groove formed within a portion of the encapsulant.

49. (Original) An optical transceiver comprising:

an electrical connector;

a photonics component flip-chip mounted to the electrical connector;

a transmission medium disposed proximate the electrical connector, the transmission medium comprising relay lens elements and anti-reflection coating;

an encapsulant surrounding at least a portion of the connector and at least a portion of the transmission medium; and

a guide groove formed within the encapsulant.

50. (Original) An optical system comprising:

an electrical connector;

a photonics components flip-chip mounted to a first portion of the electrical connector;

a printed circuit board electrical coupled to the electrical connector;

a transmission medium transparent in the visible and mid infrared regions of the radiation spectrum disposed proximate the electrical connector, the transmission medium comprising relay lens elements and anti-reflection coating; and

an encapsulant surrounding at least a portion of the connector and at least a portion of the transmission medium.

51. (Original) An optical coupler for wavelength division multiplexing comprising:

an electrical connector;

a photonics component flip-chip mounted to the electrical connector;

a wavelength multiplexed transmission medium disposed proximate the electrical connector, the medium comprising relay lens elements and anti-reflection coating;

an encapsulant surrounding at least a portion of the connector and at least a portion of the transmission medium; and

a guide groove formed within the encapsulant.

52. (Original) An optical coupler for wavelength division demultiplexing comprising:

an electrical connector;

a photonics component flip-chip mounted to the electrical connector;

a wavelength demultiplexing transmission medium disposed proximate the electrical connector, the medium comprising relay lens elements and anti-reflection coating;

an encapsulant surrounding at least a portion of the connector and at least a portion of the transmission medium; and

a guide groove formed within the encapsulant.

53. (New) An optical transceiver comprising:

an electrical connector;

an optoelectronic component mounted attached to a first portion of the electrical connector;

a substrate attached to a second portion of the electrical connector;

an optical transmission medium made of fiber bundles disposed proximate the electrical connector;

an encapsulant surrounding at least a portion of the connector and at least a portion of the transmission medium; and

a guide groove formed within a portion of the encapsulant.

54. (New) An optical transceiver comprising:

an electrical connector;

an optoelectronic component mounted to the electrical connector;

a transmission medium disposed proximate the electrical connector, the transmission medium comprising relay lens elements and anti-reflection coating;

an encapsulant surrounding at least a portion of the connector and at least a portion of the transmission medium; and

a guide groove formed within the encapsulant.

55. (New) An optical system comprising:

an electrical connector;

an optoelectronic component mounted to a first portion of the electrical connector;

a printed circuit board electrical coupled to the electrical connector;

a transmission medium transparent in the visible and mid infrared regions of the radiation spectrum disposed proximate the electrical connector, the transmission medium comprising relay lens elements and anti-reflection coating; and

an encapsulant surrounding at least a portion of the connector and at least a portion of the transmission medium.

56. (New) An optical coupler for wavelength division multiplexing comprising:

an electrical connector;

a optoelectronic component mounted to the electrical connector;

a wavelength multiplexed transmission medium disposed proximate the electrical connector, the medium comprising relay lens elements and anti-reflection coating;

an encapsulant surrounding at least a portion of the connector and at least a portion of the transmission medium; and

a guide groove formed within the encapsulant..

57. (New) An optical coupler for wavelength division demultiplexing comprising:

an electrical connector;

a optoelectronic component mounted to the electrical connector;

a wavelength demultiplexing transmission medium disposed proximate the electrical connector, the medium comprising relay lens elements and anti-reflection coating;

an encapsulant surrounding at least a portion of the connector and at least a portion of the transmission medium; and

a guide groove formed within the encapsulant..

58. (New) A method of forming an optical coupler, the method comprising the steps of:

creating electrical connectors;

placing a waveguide adjacent and parallel to at least a portion of the electrical connectors; and

encapsulating at least a portion of the electrical connectors and at least a portion of the waveguide, thereby maintaining said at least portion of electrical connectors and the waveguide in a fixed space relationship.

59. (New) The method of forming the optical coupler of claim 58, further comprising the step of forming guides.

60. (New) The method of forming the optical coupler of claim 59, wherein the step of forming guides comprises bending a portion of a conductive plate to form a conduit.

61. (New) The method of forming the optical coupler of claim 58, wherein the step of creating electrical connectors comprises providing a leadframe and bending the leads.

62. (New) The method of forming the optical coupler of claim 58, wherein the step of creating electrical connectors comprises patterning a surface of a plate of conductive material, etching the plate of conductive material to form conductive leads, and bending the conductive leads.

63. (New) The method of forming the optical coupler of claim 58, further comprising the step of polishing an end of the waveguide.

64. (New) The method of forming the optical coupler of claim 58, further comprising the step of singulating.

65. (New) The method of forming the optical coupler of claim 58, further comprising the step of coating an end of the electrical connectors with a conductive material.

66. (New) The method of forming the optical coupler of claim 65, wherein the step of coating an end comprises attaching a conductive tape to an end.

67. (New) The method of forming the optical coupler of claim 65, wherein the step of coating an end comprises plating conductive material on the end.

68. (New) The method of forming the optical coupler of claim 58, further comprising the step of attaching guide sleeves to a portion of the electrical connectors.

69. (New) The method of forming an optical coupler of claim 58, further comprising the step of forming a ground plane coupled to a portion of the electrical connectors.

70. (New) An optical coupler for coupling an optoelectronic device to an optical fiber, comprising:

an electrical connector ;

an optical transmission medium disposed proximate the electrical connector; and

an encapsulant surrounding at least a portion of the connector and at least a portion of the transmission medium, thereby maintaining the electrical connector and the optical transmission medium in a fixed space relationship.

71. (New) An optical coupler for coupling an optoelectronic device to an optical fiber having a first core diameter, comprising:

an electrical connector ;

an optical transmission medium comprising fused optical fibers having a core diameter less than said first core diameter and disposed proximate the electrical connector; and

an encapsulant surrounding at least a portion of the connector and at least a portion of the transmission medium.

72. (New) The optical coupler of claim 71,

wherein each of the fused optical fibers have a core diameter smaller than about 50 microns.

73. (New) An optical coupler as in claim 70,

wherein the electrical connector includes a conductive lead having a first end and a second end, disposed to conduct electric current in a direction substantially parallel to the optical transmission medium.

74. (New) An optical coupler as in claim 70,

wherein the encapsulant includes silica-filled epoxy material.

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75. (New) The optical coupler of claim 70, further comprising guides configured to receive guide pins attached to fiber ribbon.

76. (New) The optical coupler of claim 70, further comprising a ground plane formed on a lower portion of the coupler.

77. (New) The optical coupler of claim 70, further comprising:

die attachment material to facilitate bonding of the connector to a substrate.

78. (New) The optical coupler of claim 70, further comprising:

conductive tape configured to facilitate coupling the connector to an optoelectronic device.

79. (New) The optical coupler of claim 70, wherein the electrical connector includes a conductive plug within a microelectronic device.

80. (New) The optical coupler of claim 79, wherein the electrical connector comprises a plurality of conductive plugs within a microelectronic device.

81. (New) An optical coupler comprising:

an electrical connector;

an optical transmission medium juxtaposed with the electrical connector, an optical path of the optical transmission medium being parallel to and coextensive with at least a portion of the electrical connector; and

an optoelectronic device attached to said electrical connector transverse to the optical path and adjacent one end of the optical transmission medium.

82. (New) An optical coupler as in claim 81, wherein the optoelectronic device is a VCSEL.

83. (New) An optical coupler as in claim 81, further comprising:

an optically transparent gel interposed between the optical transmission medium and the optoelectronic device.

84. (New) An optical coupler as in claim 83, wherein said optically transparent gel is index matched to the index of refraction of the transmission medium and to a portion of the optoelectronic device.

85. (New) An optical coupler as in claim 81, further comprising:

an alignment guide disposed longitudinally in parallel with the optical path.

86. (New) An optical coupler comprising:

an electrical connector;

an optical transmission medium attached to the electrical connector, the optical path of the optical transmission medium being parallel to at least a portion of the electrical connector such that a surface portion of said electrical connector and an end surface of the optical transmission medium form a substantially coplanar surface; and

an optoelectronic device attached to the surface portion of said electrical connector and adjacent the optical transmission medium at said coplanar surface.

87. (New) An optical coupler as in claim 86, wherein the optoelectronic device is a VCSEL.

88. (New) An optical coupler as in claim 86, further comprising:

an optically transparent gel interposed between the optical transmission medium and the optoelectronic device.

89. (New) An optical coupler as in claim 88, wherein said optically transparent gel is index matched to the index of refraction of the transmission medium and to a portion of the optoelectronic device.

90. (New) An optical coupler as in claim 86, further comprising:

an alignment guide disposed longitudinally in parallel with the optical path.

91. (New) An optical coupler as in claim 86, wherein the optoelectronic device is a photo detector.

92, (New) An optical coupler as in claim 81, wherein the optoelectronic device is a photo detector.